Distribution, ecology, and migratory movements of Red Knots breeding in Alaska

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Introduction

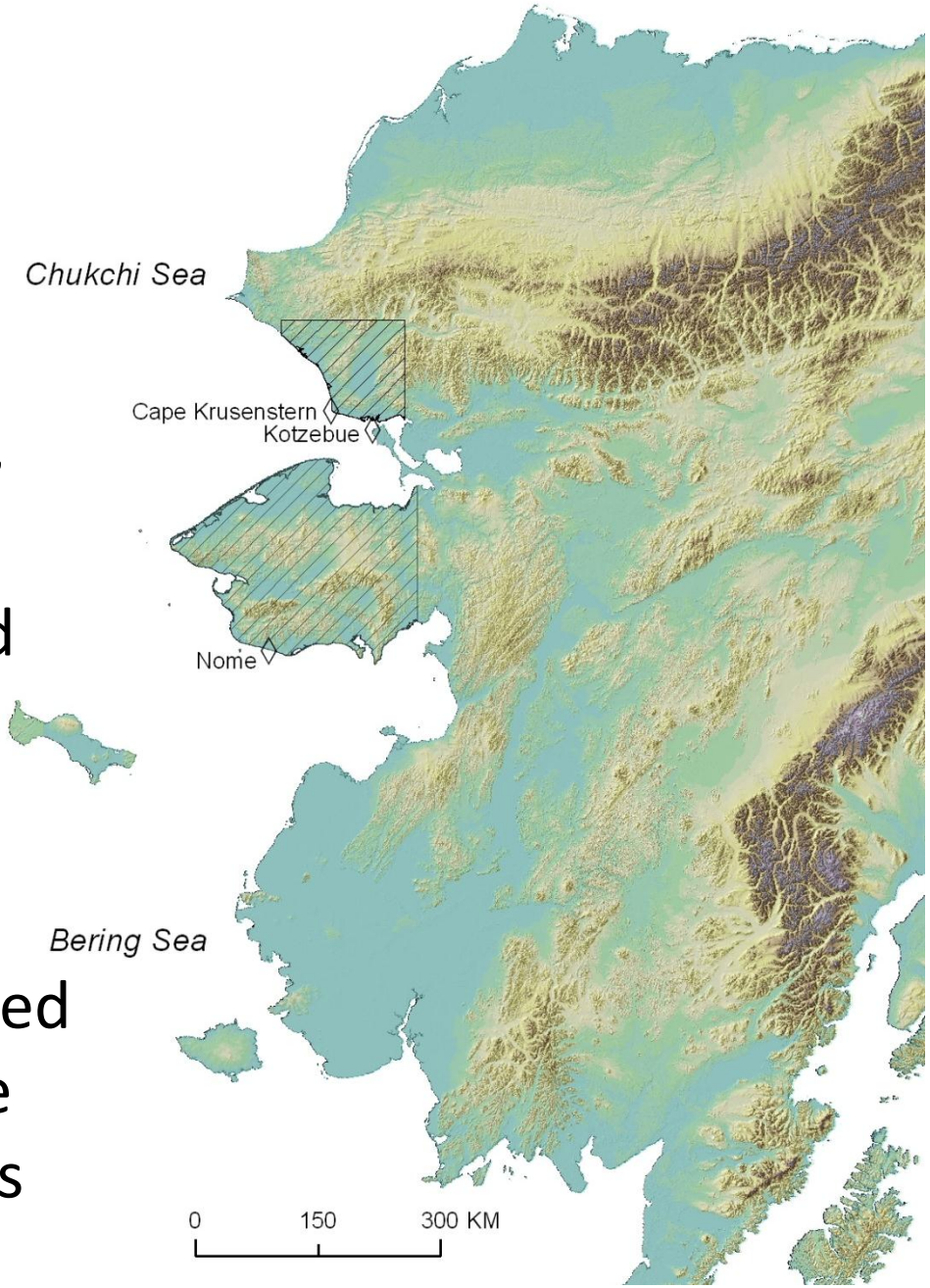
- N. American knots
- No previous surveys or studies focused on knots during the breeding season in Alaska
  - Distribution uncertain
  - Densities and population size unknown
  - Breeding ecology information limited
  - Migratory timing and routes uncertain

Presentation overview

- Surveys of northwestern Alaska
  - Estimate core breeding range in Alaska
- Breeding ecology
- Annual movements
- Future efforts

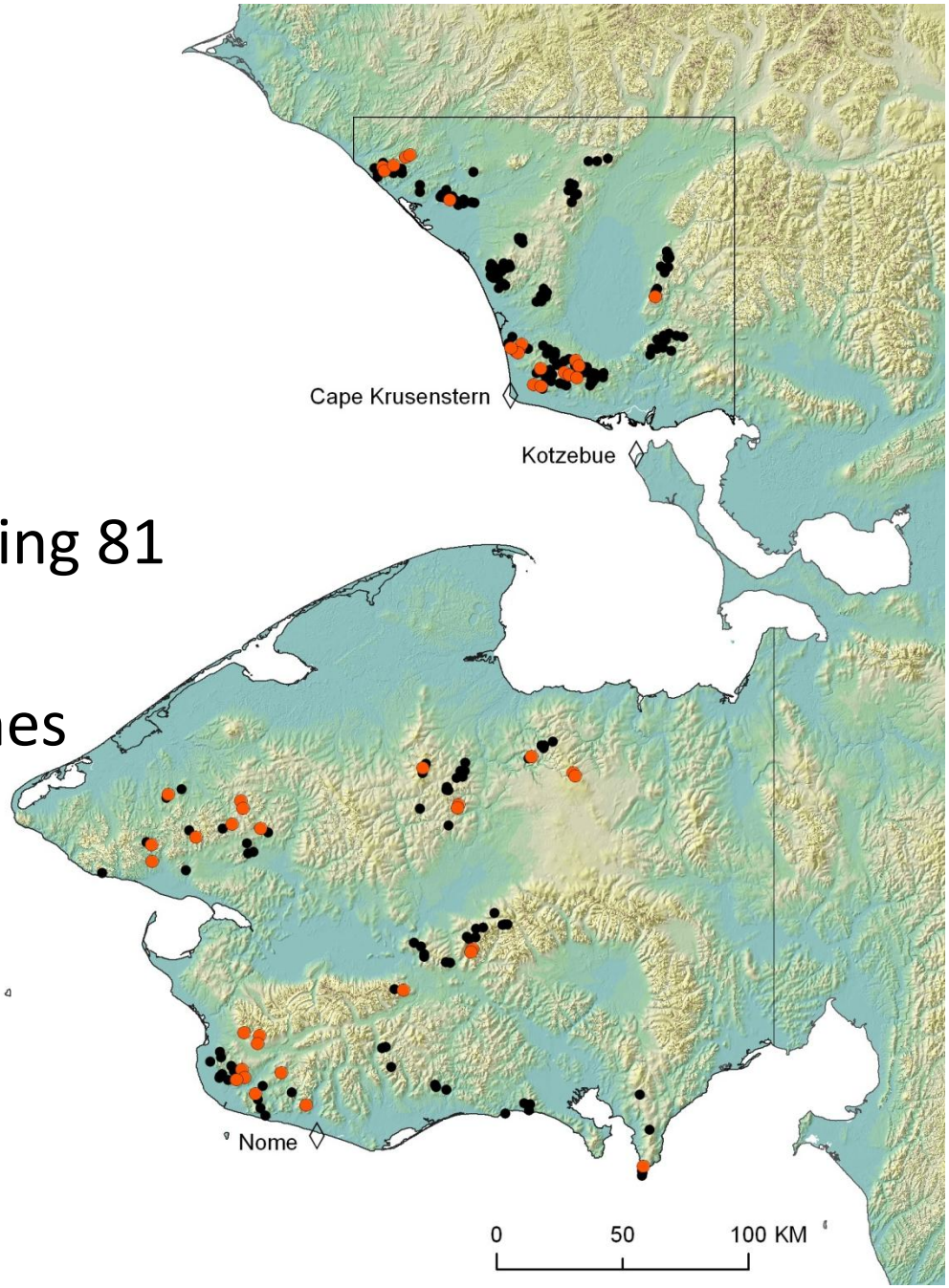
Survey methods

- Krusenstern Nat. Mon. & Seward Peninsula
- Stratified by ecotype, size, slope, & distance to coast
- Suitable polygons selected using GRTS
- Majority of polygons surveyed once
- Subset of polygons surveyed multiple times to estimate detection rates & densities



Survey results

- 255 plots surveyed
- 19% plots occupied
- 125 individuals comprising 81 pairs detected
- Sparsely vegetated domes & ridgelines at >100 m elevation

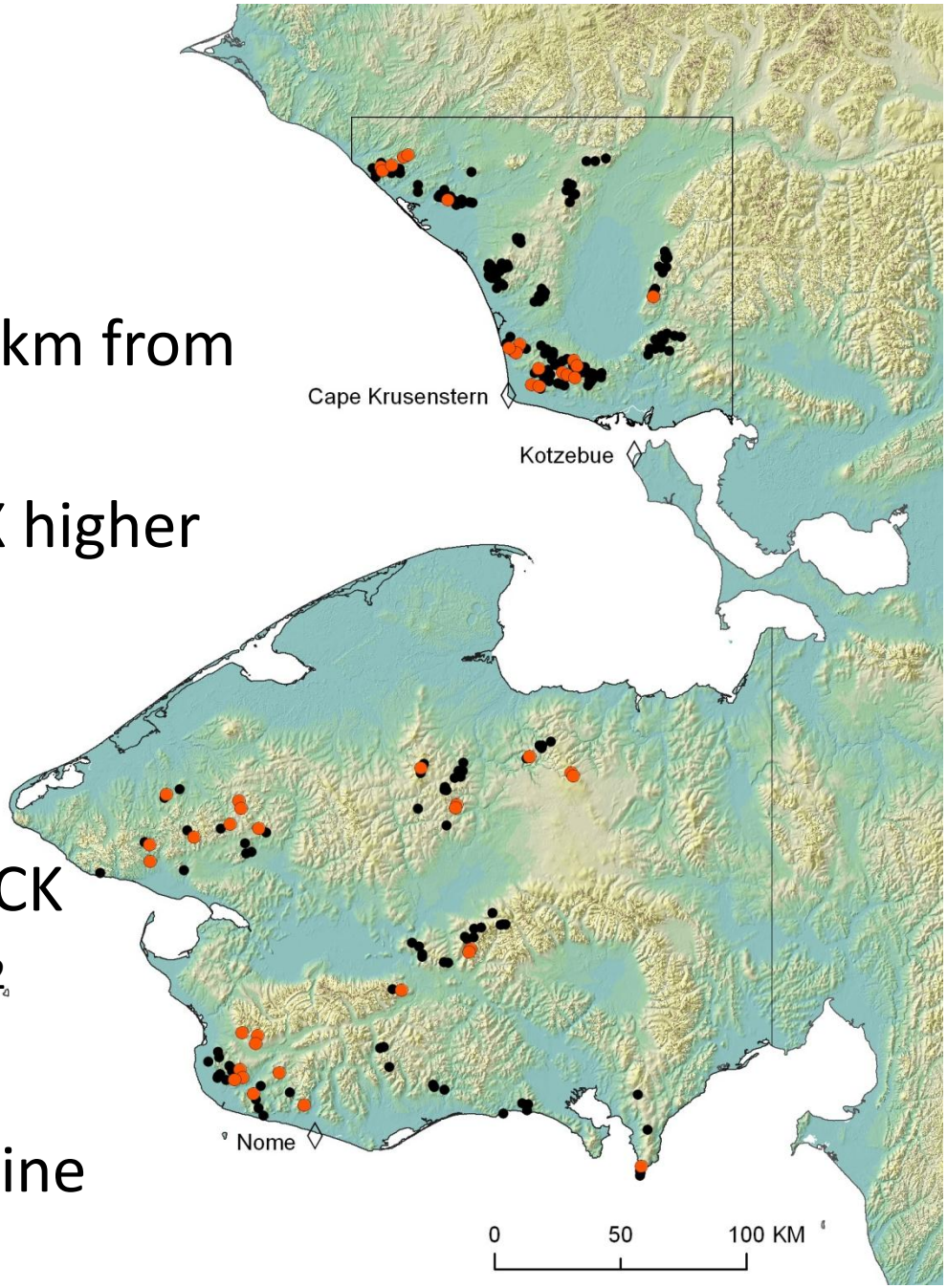



Limestone Domes
York Mts., Seward Peninsula


Granite ridgeline
W. Kigluak Mts., Seward Peninsula

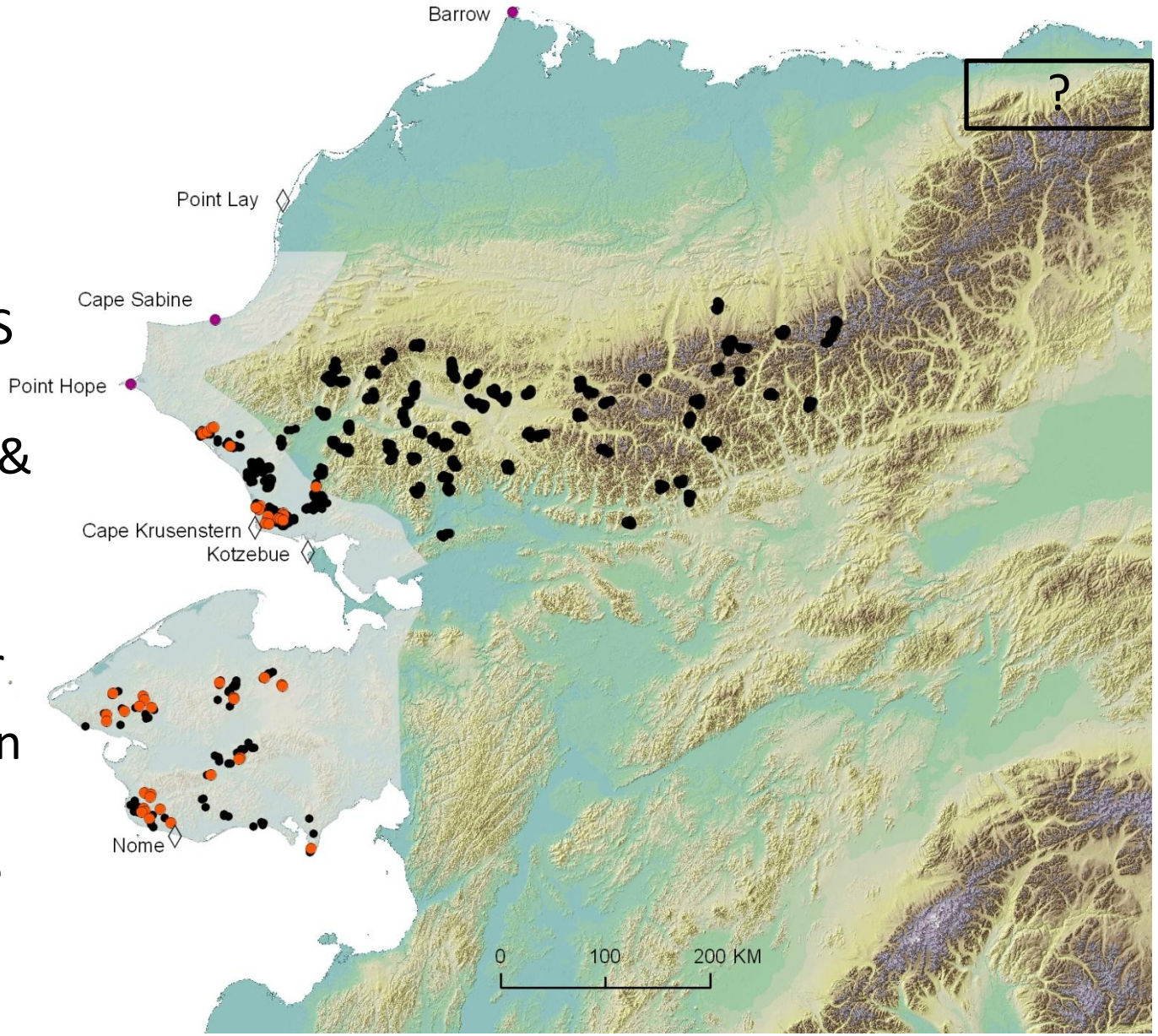
Regional comparisons

- CK detections ave. = 10 km from coast; SP ave. = 27 km
- % occupied polygons 2X higher on SP
- No. of pairs 2.5X higher on SP
- 0.3 to 0.6 pairs/km^2 on CK
- 2 to 5 pairs/0.1–0.4 km^2 on SP
- 12 pairs / 2.8 km^2 ridgeline



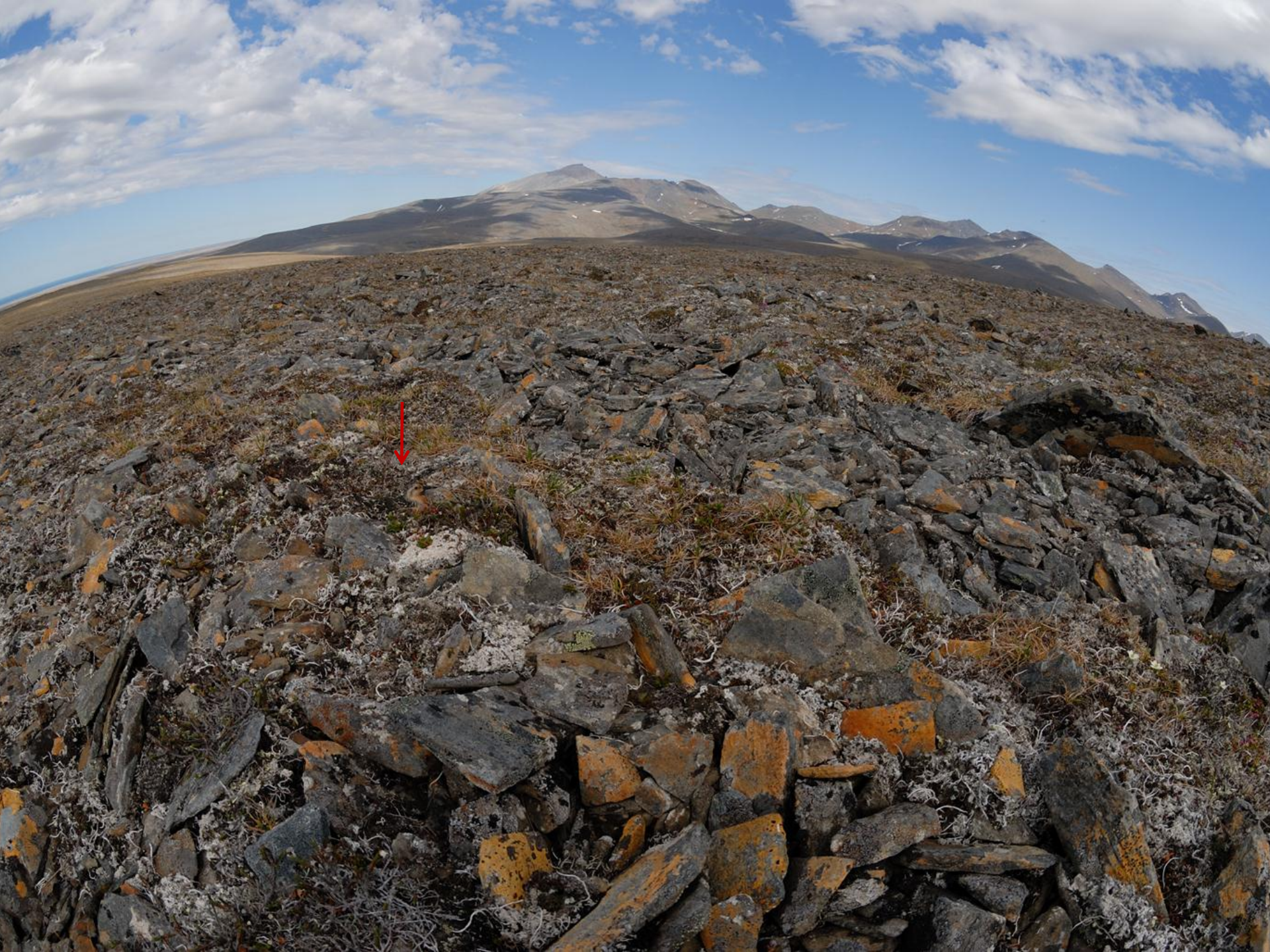
Core breeding range

- Historical breeding records, USGS montane bird surveys, & this study
- SP + 50 km coastal buffer
- Likely breed in northeastern Brooks Range



Breeding ecology

"It is very extraordinary, considering the *hundreds* of miles traversed…all on the lookout for this bird's eggs…that we found no trace of its breeding until the young in down were discovered." Bent 1927



Breeding ecology

- 17 nests
- Nest success = 40% (10 nests)
- Re-nesting followed 31 May depredation event
- Nests initiated 24–26 May had 4 eggs; 2–9 June had 3 eggs
- Loss of broods

Site fidelity

- 11 / 14 males (79%)
- 1 / 3 females (33%)
- < 1 km from capture location

- Chick banded in 2009 returned to nest in 2011

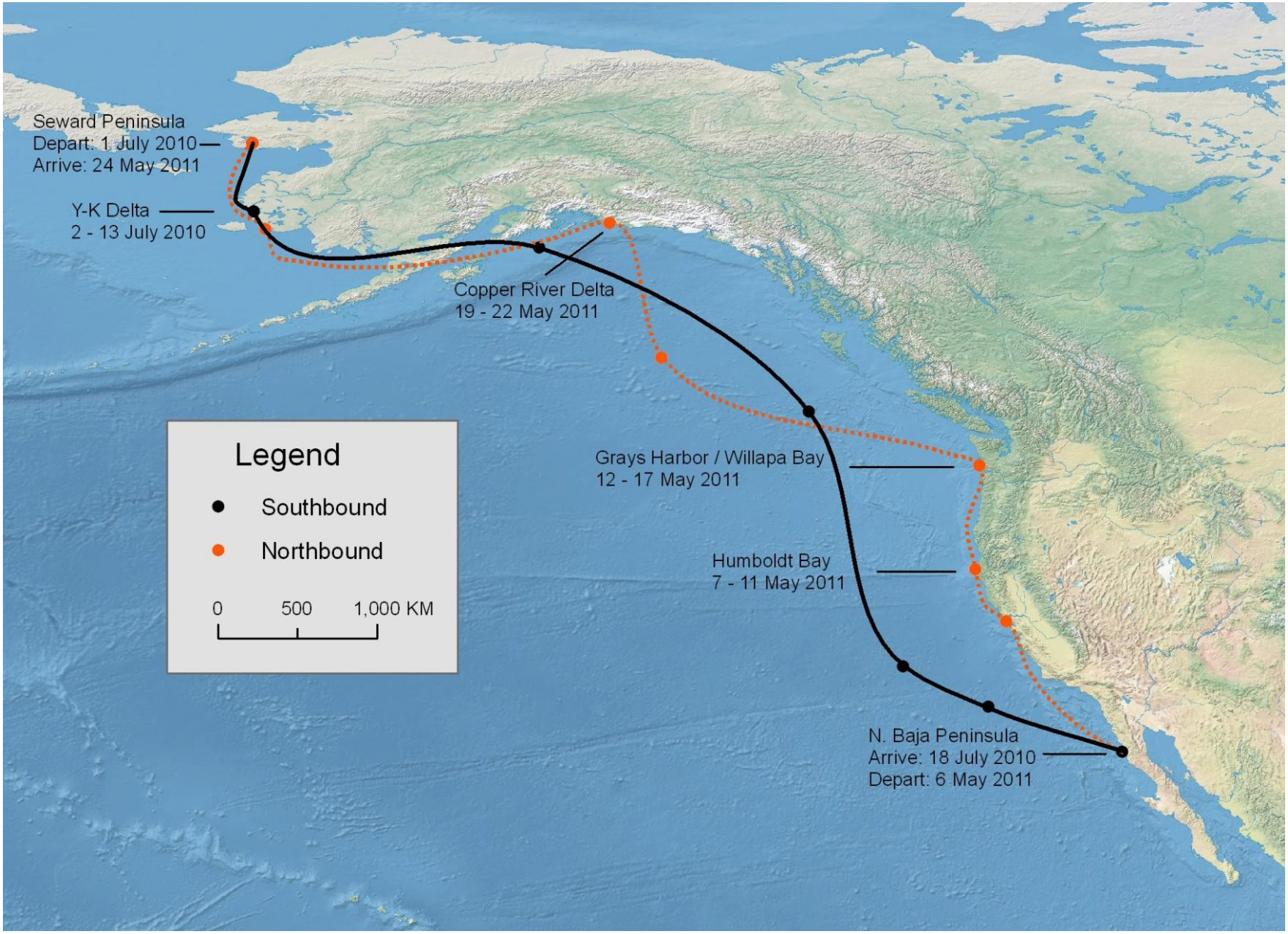
Resighting

- Three records of knots banded in Baja
- Records of AK birds in Baja (2), San Diego, CA (1), and Grays Harbor, WA (2)

- 50 adults and 50 chicks banded to date

Annual movements

- 1.1 g BAS geolocators
- 17 attached in 2010
- 12 (71%) resighted in 2011
- 6 retrieved (5 males & 1 female)
- No noticeable adverse effects to birds
- 14 attached in 2011


Seward Peninsula
Depart: 1 July 2010
Arrive: 24 May 2011
Y-K Delta
2 - 13 July 2010
Copper River Delta
19 - 22 May 2011
Grays Harbor / Willapa Bay
12 - 17 May 2011
Humboldt Bay
7 - 11 May 2011
N. Baja Peninsula
Arrive: 18 July 2010
Depart: 6 May 2011
Legend
Southbound
Northbound
0
500
1,000 KM

Summary

- Seward Peninsula supports highest breeding densities recorded in global range
- Lower nest & brood success than anticipated in 2011
- Re-nesting occurred during early breeding season
- High breeding site fidelity
- No apparent adverse effects of geolocators on birds or nest success
- Geolocator data and resighting of banded birds confirmed importance of several Pacific sites during non-breeding season

Future work

- Retrieve geolocators (25)
- Continue breeding ecology study
- Estimate population size of *roselaari* in northwestern Alaska

Acknowledgements

- J. Conklin, R. Churchwell, A. Johnson, & D. Saalfeld
- T. Sparks, BLM & D. Ayala, NRCS
- Selawik NWR
- Arctic Network, NPS
- C. Eckert – Red Dog Mine
- S. Saalfeld, Manomet
- Funding provided by USFWS

Objectives

- Obtain genetic samples
- Estimate density & distribution
- Describe breeding ecology
- Determine migratory timing & routes using geolocators